

### ***Remarks***

The Office Action dated August 28, 2008 has been carefully considered. Claims 1–2 and 4–8 have been amended. Figure 1 has been amended pursuant to the examiner’s request, and a Replacement Sheet is attached hereto as Appendix A. Applicants respectfully submit the application is now in condition for allowance.

### ***Drawings***

In Paragraph 2 of the Office Action, the drawings are objected to because Fig. 1 contains empty boxes. A corrected drawing sheet in compliance with 37 CFR 1.121 (d) is provided with this response. As suggested by the Office Action, box 3 has been labeled as “voltage source” and box 8 has been labeled as “ammeter.”

### ***Claim Rejections***

#### **The 35 USC 103(a) Rejection in Paragraph 5 of Claims 1, 3, and 4 is Improper**

In Paragraph 5 of the Office Action, Claims 1, 3, and 4 are rejected under 35 USC 103(a) as being unpatentable over Edelmann et al. (US 20060012373) in view of Scheid et al. (US 4409482). Applicants respectfully traverse the rejection as being improper. Specifically, the combination of Edelmann et al. and Scheid et al. fails to meet the inventions of Claims 1, 3, and 4, as presently claimed features are not found in either.

Edelmann et al. uses two voltage sources and switches from one to the other depending on the vacuum range. When the pressure is less than  $10^{-2}$  Pa, Edelmann et al. teaches using a constant (DC) voltage while when the pressure is more than  $10^{-2}$  Pa, Edelmann et al. teaches using an alternating (AC) voltage. Edelmann et al. ¶¶ 0015, 0022. Edelmann et al. only

switches between these two voltages and does not disclose varying the voltage at either of those sources once it has been engaged. Edelmann et al. ¶¶ 0015, 0022.

Contrary to the Examiner's assertion, Edelmann et al. fails to disclose or suggest "varying a voltage on an anode of the cold cathode pressure gauge with pressure" and "scan[ing] a whole voltage range in a relatively short time." In fact, there are at least three reasons for Edelmann et al. being unable to measure the dependence of the ion current upon voltage or find the maximum. First, each of the two voltage sources of Edelmann et al. is used independently. Second, Edelmann et al. only measures the alternating current at the voltage source and not the variations of the ion current as claimed. Edelmann et al. ¶ 0023. Third, when Edelmann et al. is using a rectangular voltage, the voltage-dependence of the ion current can not be measured because the rectangular voltage only can assume two discrete values.

Although the alternating voltage used by Edelmann et al. might technically "produce a voltage in a range of voltages," that "range of voltages" cannot produce an ion current flow that is "maintained substantially at its maximum value at all times." The maximum current produced by the inventions as presently claimed is "stable and presents no discontinuities or oscillations." Edelmann et al.'s alternating voltage that cycles through the wavelength cannot produce such an ion current flow. Additionally, the alternating voltage does not "scan[] a whole voltage range." The fact that an alternating voltage, by definition, oscillates between maximum and minimum voltages does not disclose or suggest "a voltage-controlled source" which "preliminary scans a whole voltage range."

Even if Edelmann et al. were able to produce an ion current flow that was stable and disclosed a means of measuring the ion current flow, Edelmann et al. would still not disclose or suggest the elements of the inventions as presently claimed because it does not disclose or suggest scanning the whole voltage range.

The defects of Edelmann et al. are not cured by combination with Scheid et al. In fact, Scheid et al. is, in and of itself, defective. Contrary to the Examiner's assertion, Scheid et al. fails to disclose or suggest varying voltage "in such a way that an ion current flow is maintained substantially at its maximum value at all times."

Scheid et al. relates to mass spectrometers in which an ionized gas is accelerated to form an ion stream to identify the ions present in the stream. Scheid et al. col. 1, ln. 6–9. Scheid et al. discloses accelerating ions to form an ion stream in a mass spectrometer then modulating either the acceleration voltage or the magnetic field to spatially move the ion stream so the largest concentration of the stream is hitting the ion collector. Scheid et al. col 2, ln. 7–12, 17–33. The ion collector is physically located in the path of the ion stream. Scheid et al. col 1, ln. 18–22. Scheid et al. is performing a fundamentally different operation than the inventions as presently claimed.

Scheid et al. discloses a method of altering the path of the ion stream to ensure the ion stream hits the ion collector that then generates a maximum current output dependent on the ion concentration. Scheid et al. col 1, ln. 18–22; col 2, ln. 7–12. Scheid et al. discloses modulating the acceleration voltage to physically affect the path of the ion stream by introducing a second voltage, an alternating voltage, to the system. Scheid et al. col 2, ln. 64–col. 3, ln. 1–5. Scheid et al. discloses using modulating the magnetic field of the mass spectrometer to

physically move the ion stream. Scheid et al. col 3, ln. 5–8. In neither case is Scheid et al. varying the source voltage to determine where the “ion current flow is maintained substantially at its maximum value at all times.” Instead, Scheid et al. finds the “maximum current output” which is the peak output position of the ion collector with respect to the position of ion stream on the ion collector. Scheid et al. col 1, ln. 29; col. 2, ln. 57–64. Therefore, Scheid et al. does not cure the defects found in Edelmann et al., nor does Scheid et al disclose or suggest any elements of the claimed invention.

Neither Edelmann et al. nor Scheid et al. make obvious any elements of the inventions as presently claimed and neither reference cures the defects of the other. Applicants respectfully request the examiner withdraw all rejections based on Edelmann et al. and Scheid et al. because the rejections are improper, and allow the application.

The 35 USC 103(a) Rejection in Paragraph 6 of Claims 2 and 5-8 is Improper

In Paragraph 6 of the Office Action, Claims 2 and 5-8 are rejected under 35 USC 103(a) as being unpatentable over Edelmann et al. (US Pub 20060012373) and Scheid et al. (4409482), as applied to Claims 3 and 4 above, and further, in view of Peacock (4967157) [note Claim 2 is rejected by the three references and not as applied any of the claims above since it is an independent claim].

As set out above, the combination of Edelmann et al. and Scheid et al. is improper because such a combination does not disclose or suggest the elements of the inventions as presently claimed. The examiner has cited Peacock et al. for its alleged disclosure of a method of calibrating a gauge, data storage, and for disclosing the cell as either a magnetron pressure cell

or Penning pressure gauge cell. Even if Peacock et al. were to disclose what the examiner contends, it does not cure the defects stated above in respect to Edelmann et al. and Scheid et al. The combination of Peacock et al. with Edelmann et al. and Scheid et al. is also improper.

Neither Edelmann et al. nor Scheid et al. make obvious any elements of the inventions as presently claimed and neither reference cures the defects of the other. The addition of Peacock et al. does not cure the defects of Edelmann et al. or Scheid et al. Applicants respectfully request the examiner withdraw all rejections, based on Edelmann et al., Scheid et al., and Peacock et al. because the rejections are improper, and allow the application.

The 35 USC 103(a) Rejection in Paragraph 7 of Claims 9 and 10 is Improper

In Paragraph 7 of the Office Action, Claims 9 and 10 are rejected under 35 USC 103(a) as being unpatentable over Edelmann et al. (US Pub 20060012373) and Scheid et al. (4409482), as applied to Claims 1 and 4 above, and further in view of Hollman (US Pub 20030042921). The examiner contends Hollman discloses a voltage range between 1kV and 12kV. Even if Hollman were to disclose what the examiner contends, it does not cure the defects stated above in respect to Edelmann et al. and Scheid et al. The combination of Hollman with Edelmann et al. and Scheid et al. is also improper.

Neither Edelmann et al. nor Scheid et al. make obvious any elements of the inventions as presently claimed and neither reference cures the defects of the other. The addition of Hollman does not cure the defects of Edelmann et al. or Scheid et al. Applicants respectfully request the examiner withdraw all rejections based on Edelmann et al., Scheid et al., and Hollman because the rejections are improper and allow the application.

***Conclusion***

In light of the amendments and remarks presented herein, Applicants submit that the present application is in condition for allowance, and such action is respectfully requested. If, however, any issues remain unresolved, the Examiner is invited to telephone Applicants' counsel at the number provided below.

Respectfully submitted,

/Stanislav Antolin/

Stanislav Antolin  
Registration No. 34,979

SMITH MOORE LEATHERWOOD LLP  
P.O. Box 21927  
Greensboro, NC 27420  
(336) 378-5516  
stan.antolin@smithmoorelaw.com

Date: February 25, 2009

File No.: 5007653.001US1

CERTIFICATE OF TRANSMISSION

I HEREBY CERTIFY THAT THIS DOCUMENT IS  
BEING TRANSMITTED VIA EFS-WEB TO THE UNITED  
STATES PATENT AND TRADEMARK OFFICE  
ADDRESSED TO: MAIL STOP AMENDMENT,  
COMMISSIONER FOR PATENTS, P.O. BOX 1450,  
ALEXANDRIA, VA 22313-1450, ON February 25, 2009  
(Date)

Lorna D. Selvaggio

Name of Depositor

/Lorna D. Selvaggio/

Signature

February 25, 2009

Date of Signature

# APPENDIX A